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HIGHER EDUCATION

MONTHLY PUBLICATION OF THE U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education, Higher Education Division

VOL. XI, NO. 6 WASHINGTON, D. C. FEBRUARY 1955

Higher Education in India: Recent Developments

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HIGHER EDUCATION in India has come to a crossroad. It has reached the end of an epoch and is now faced with the problems and perplexities of a new epoch. The epoch that is over was a unique one. It witnessed a tremendous clash of cultures in which a small distant island set up an entirely new system of education, modeled on its own, as a means of administrative and cultural control to consolidate its political power over a teeming subcontinent. The English system of education thus born in India over a century ago was also a unique experiment. It dominated the life of more people and more completely than perhaps any other alien system has done in the annals of education. Strange enough, the system envisaged its possible fulfillment in freedom of the people whose life it sought so zealously to mold. And, so, when independence did come to India, the English system of education became unavoidably out of place. Independence has exposed the system to new issues and challenges which it is ill equipped to answer, except by temporizing and compromising. It appears to have produced more problems and paradoxes. The system has therefore been assailed on all sides and blamed for all sorts of things, often quite unjustifiably.

Background

Quite unjustifiably, because the obvious fact is often overlooked that the present system of education in India was never intended to meet such issues and challenges. In fact, it may even be said that the system has been unusually successful in the limited objectives for which it was originally set up. At the same time, from the success of those objectives stemmed the serious defects of the system. For instance, perhaps the main purpose of that system was to meet the urgent administrative needs of the new government—"to prepare natives for public employment." That objective was certainly achieved, for the country was provided in due course, with an efficient and uniform system of administration. But because of that strictly utilitarian objective, the system also acquired the defects of extremely restricted scope, purely academic character, and topheavy organization.

The second specific, though subsidiary, objective was "the promotion of English literature and science" among the Indian people. In this, too, the English

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system of education was sufficiently successful. It leavened the minds of a minority, however small, with progressive Western thought and science which contributed not a little to its fulfillment. Unfortunately, however, the policy of spreading Western thought and science, though conceived in charity, was inspired by arrogance born of conquest. Macaulay, whose famous "Minute on Education" of 1832 formed the foundation of the English system of education, sincerely believed that "A single shelf of good European library was worth the whole native literature of India and Arabia." And he proposed to produce "at least, a class of persons Indian in blood and colour but English in opinion, in morals and intellect." This planned "substitution" of an alien culture could not but cause a complete alienation between the educated class and ignorant masses, between the aims and achievements of the new educational system and the social and economic needs of the students as well as the country. In fact, it was customary for an Indian college student to flaunt false imitation of foreign customs without caring to acquire even an elementary idea of his own environment and culture.

In spite of these defects higher education in India flourished because of the success of the limited objectives. The first three universities of Calcutta, Bombay, and Madras were instituted in 1857, on the model of the London University, as a direct result of the famous Wood Dispatch in 1854, which has been described as "The Magna Charta of English Education in India." The universities were merely affiliating bodies without any teaching functions. The Punjab and Allahabad universities were constituted on the same model in 1882 and 1887, respectively. The Universities Act of 1904 gave Indian universities the right to assume teaching and research functions. Between the first World War and 1947, 13 universities sprang up in quick succession, some of them with broader functions.

It was, however, apparent from the beginning that, on the whole, the defects of the English system of education predominated. Committees and commissions had probed them from time to time. The Hunter Commission of 1882, the Universities Commission of 1902, the Sadler Commission of 1917, and the Hartog Committee of 1927 were important milestones in the search for a sounder system of education, even before independence. But insofar as the English system of education subserved the British political interests, no far-reaching changes could be effected in it. The "Sargent Report," prepared by the Government of India in 1944, viewed Indian education for the first time in the context of an awakened India. The "Report of the University Education Commission," completed in 1949, is the first comprehensive attempt at reorganization of higher education in India since independence. The report was prepared by the University Education Commission, appointed in 1948 soon after independence, under the distinguished chairmanship of Dr. Radhakrishnan. Dr. Arthur E. Morgan, an eminent American educator, was a member.

Proper Perspective

One of the distinguishing features of the recent attempts at reorganization of higher education in India has been a new sense of perspective. Until recently, education in India was almost synonymous with higher education; elementary and secondary schools counted for little, except as necessary channels through which students arrived at the threshold of their ambition of university education and employment. In fact, a university degree was an essential passport to civil service and the professions. For that reason alone, higher education completely dominated the aims and contents of elementary and secondary education. Increasing national awakening, however, gradually supplied the necessary corrective to this restricted perspective, and higher education was more and more seen as part of a wider process whose foundations had been neglected.

It would not have been surprising if, on the eve of independence, the public opinion had swung to the other extreme of emphasizing elementary and secondary education to the exclusion of university education. But such a reaction has fortunately been avoided so far. The Sargent Report published in 1944, representing the first integrated approach to the problems of Indian education, laid justifiable emphasis on compulsory elementary education and diversified secondary education; at the same time it placed due importance on higher education in its proposed pattern of postwar educational development in India. Similarly, the University Education Commission, though restricted in their terms of reference to higher education, emphasized that "a proper edifice of university education can be built only if literacy is widespread and primary and secondary education is liberally extended." At the same time it urged eloquently the importance of more and better higher education.

More Higher Education

No restrictions have, therefore, been placed on the increasing popular demand for higher education in India. The result is an unprecedented expansion even in the brief period since independence. Fourteen new universities have been added, bringing the total to 32.

The number of colleges affiliated with Indian universities increased from 414 in 1948 to 679 in 1953 in the major States. The total number of all kinds of colleges in the whole country was 1,135 in 1954. Then there are over 265 institutions, not affiliated with universities, offering undergraduate and graduate courses in general and professional fields of studies. For instance, there are 25 such institutions in the field of Oriental learning and theology; and 16 in music and other fine arts.

Taking universities alone, the enrollment also increased—from 223,777 in 1948 to 364,485 in 1953 in the major States. The total enrollment in the whole country went up to 465,794 in 1953.

Women students comprised nearly one-eighth of the total number. There are now over 75 colleges exclusively for women in the country. Most of the colleges, affiliated with Indian universities, are, however, coeducational; and the number of women studying along with men is fast increasing in every part of the country. The substantial rise in the women's enrollment in colleges, particularly in coeducational institutions, is one of the most significant developments in higher education in India. Two of the universities have women vice chancellors.

The expansion of higher education may also be judged from the increase in the number of students graduating from Indian universities—from 27,000 in 1948 to 62,000 in 1953 in the major States. The total number in the country was about 70,000 in 1953. And expenditures on universities and colleges, both general and professional, more than doubled in the same period—from about $15.9 million to about $34.4 million in the major States. In the whole country the total expenditure rose to about $44.4 million in 1953.

This tremendous expansion has, however, accentuated one of the baffling paradoxes of higher education in India. The paradox is that on the one hand higher education is inadequate to the total needs of the country, and on the other hand it is topheavy. Actually, less than 1 percent in the age groups of 17 to 23 receives the benefit of college education in India. The proportion of students in universities to the total population is low in India—about 1 to 2,200. On the other hand, perhaps a larger number of high school students go to college in India than in most other countries—about 1 out of 3, indicating the topheavy structure of the system. Even so, the number of graduates turned out by Indian universities cannot be called too large, considering the total population of 360 million. For instance, in 1951–52, 59,500 were graduated at the bachelor level, 9,400 at the master's, and only 190 at the doctorate level. Yet, even this comparatively small number cannot be fruitfully absorbed; most of the successful candidates are faced with the serious problem of unemployment.

Better Higher Education

The solution to this problem is sought not in restricting higher education but in improving its quality so as to relate it more and more to the social, economic, and cultural needs of students as well as the country. This in itself has presented a difficult problem: How to reconcile the overriding urge for expansion of higher education with the vital need for radical improvement of its quality. However, despite serious financial difficulties, responsibility in both directions has been fully accepted. Accordingly, plans are under way to improve the organization of higher education.

Types of universities and colleges.—Under the new Constitution of India, education continues as a State function. The role of the Central Government is mainly to plan, coordinate, and advise on a national basis. Of the 32 universities in India only 4 are "Central," financed by the Central Government for historical reasons; the rest are "State universities," chiefly financed by respective State Governments. All the universities are constituted by statutory law under acts of State or Central Legislatures.

They are mainly of four types. There is the purely "Affiliating" university, originally the only type to be found in India, which is merely an administrative and examining body coordinating the teaching activities of a number of colleges affiliated with it but independent in every other way. This type is gradually disappearing, giving place to "Teaching and Affiliating" universities which have a central core of teaching and research departments of their own, in addition to a number of colleges affiliated with them. At present, there are 5 of the former and 14 of the latter type.

The more recent and significant type, however, is

that of "Residential and Teaching" universities. These have a number of teaching departments and colleges as integral parts, providing "a coherent corporate" life for both the members of the staff and the student community. The number of such universities has grown to 11 in recent years; but there is need for more of them. At present, less than 20 percent of university students get the benefit of college campus life. There is, however, the serious limitation of size in this type of university. Where the number of students is too large the essential purpose of "a coherent corporate" life cannot be served.

Consequently, another type of university has grown up—"Teaching and Federal"—in which a number of colleges, while forming "component parts" of the university, are administered separately. The component colleges may be on the basis of fields of study, as a medical or an engineering college, or they may be institutions teaching different subjects in which the university also shares at some or all levels. At present, there are only two universities of this type. However, the trend is to encourage development of this type where "Residential and Teaching" universities are not feasible; and where neither is possible, to strengthen the teaching side of the other two types of universities.

The universities thus consist of three main kinds of teaching institutions: (1) Teaching departments which form part and parcel of the universities; (2) constituent colleges which are integral parts of the universities, and (3) affiliated colleges, which are more or less independent. Some of the constituent and affiliated colleges are entirely Government institutions. In many universities the original nucleus for teaching purposes was a Government college; these Government colleges are still the strongest single teaching units of their universities. However, the bulk of the affiliated colleges—over 60 percent—are private, varying very widely in size, endowment, and teaching facilities. In 1954, there were 294 university teaching departments, 156 constituent colleges, and 685 affiliated colleges.

Administration.—It is considered necessary to improve the administrative system. The head of an Indian university is the chancellor who is usually the Governor of the State. The real head, however, is the vice chancellor, appointed by the chancellor in certain cases, and in other cases elected by the university for 2 or 3 years. He is the chief executive and runs his university with the help of a large body called the senate or the court, in some cases consisting of nearly 200 members, most of them ex officio and nominated ones. The senate carries on the immediate executive duties through a smaller body called the syndicate or the executive council. For purely educational matters some of the universities have academic councils, consisting mainly of teachers. Then there are the boards or departments of studies for particular subjects, and faculties for each group of subjects like arts, science, medicine, and engineering.

The administrative costs of an Indian university, including the salary of the teaching staff, accounts for about 60 percent of its total expenditure in spite of the fact that Indian college teachers are among the lowest paid in that category in the world. Bold attempts are now being made to rectify topheavy organizations, encourage greater autonomy, increase the elective principle in all governing bodies, and raise the salaries, status, and the tenure of teachers as well as vice chancellors. Curiously, these developments have, in some universities, only accentuated academic politics, causing a temporary reaction.

Admission standards.—Another important trend is toward raising the standards of admission to higher education. The question of rigid restriction of admissions has been the subject of an acute controversy on the ground that such a move might seem undemocratic. There is, however, a consensus that the background of secondary education should be strengthened as a basis for admission to college education. At present, in most parts of the country, secondary education consists of 6 years preceded by 4 or 5 years of primary education. At the university level, the undergraduate B. A. or B. S. degree course is generally of 4 years, comprising 2 years of intermediate and 2 years of the proper degree course. Admission to such a course is granted on the basis of success in the matriculation examination held by the university, to which students completing secondary education are eligible.

In certain States, separate intermediate or junior colleges have developed with a 2-year course, under the purview of the board of secondary and intermediate education and not under the control of the university. At present 11 such boards are conducting high school and/or intermediate examinations; 2 of them also control 27 junior or intermediate colleges. Honors, professional, and technological degree courses are usually of 3- to 5-year periods after 2 years of intermediate studies. Graduate degrees

of M. A., M. S. usually require 2 years, and the Ph. D. takes 4 years for completion after B. A. and B. S. degrees.

There is a 2-fold approach in this field. Efforts are being made to increase and strengthen the 2-year intermediate colleges as self-contained units and also as training grounds for university education. Simultaneously, there is a plan to set up 7-year higher secondary schools with an additional year taken from the intermediate course, and 3-year degree colleges with an additional year also taken from the intermediate course, thus abolishing that stage of education. This plan was originally adopted by Delhi University only. Recently, however, Madras University also announced its adoption.

Curriculum and other developments.—Yet another significant trend is toward establishing rural universities "aiming at extending educational opportunity to the great mass of rural India and to give vitality and quality to rural life." So far, there has been a pronounced tendency towards urbanization of education in the whole country. Although 85 percent of the population of India lives in villages, there was not a single university located in a rural area until recently. Now, Visva Bharati, essentially a rural institution founded by the late poet Tagore has been constituted into a full-fledged university. And a new rural university has been set up at Sewagram near Wardha, the former home of Mahatma Gandhi, with the object of building up "new educational traditions of a distinctive character," especially suited to the needs of the rural population.

In many universities there is a growing emphasis on tutorials and seminars, extension services, and student activities. Special stress is being laid on the need for improvement in the present rigid and stereotyped examination system which has been the bane of Indian education all along. Then there is increasing appreciation of the important role of student counseling. Also curriculums are being increasingly enriched with new subjects and courses, more and more related to social, economic, and cultural needs of students as well as the country.

Efforts are also being made to make college curriculums more flexible. At present, courses of studies are prescribed in integral units and strict sequence on an annual basis, allowing very limited option at the graduate level only. Admissions are therefore made once a year, at the beginning of each academic year, some time in June or July, except in Jammu and Kashmir, and Roorkee universities which open in September and the Punjab university in October.

In all these matters, the Inter-University Board of India, the premier nonofficial inter-university organization set up in 1924, is taking an active part with a view to promoting uniformity and higher level of administrative and teaching standards among various universities in the country. It also issues periodically a number of useful publications, one of which is the *Handbook of Indian Universities*.

Accent on Technological Education

Professional and technological education has rereceived a tremendous impetus in recent years. Efforts to improve the quality of higher education with a view to solving the problem of unemployment in the midst of inadequate education have naturally been directed to relating such education more and more to economic and industrial needs of the country. The Government of India set up an All-India Council for Technical Education in 1945 for promotion and coordination of technological education, which in turn established six All-India Boards of Technical Studies in engineering and metallurgy, chemical engineering and chemical technology, commerce and business administration, architecture and regional planning, textile technology, and applied arts.

As a result, partly of various measures adopted by the Council and partly of the spontaneous demand for such education, admissions to various technological institutions increased from 6,000 in 1947 to 12,700 in 1953; and the outturn of degree and diploma holders increased from 2,700 to 6,000 in the same period. The number of technological and professional colleges rose from 129 in 1948 to 242 in 1953 in the major States. The total number of such institutions in the whole country at present is 314. There are also about 200 institutions, not affiliated with universities, offering undergraduate and graduate courses in different fields of technology and professional education. In addition, there are about the same number of institutions for undergraduate courses in engineering and technology at the diploma level. The All-India Council for Technical Education has a special scheme of financial assistance for encouraging the development of such institutions.

The increase in the enrollment for technical and professional education at the university stage has been phenomenal—from 44,604 in 1948 to 94,567 in 1953, in the major States. In the whole country the number rose to 114,937. Expenditure on pro-

fessional and technological colleges alone increased by more than 100 percent—from about $3.8 million in 1948 to about $10 million in 1953 in the major States. Expenditure on such colleges for the whole of India was nearly $12½ million.

These figures clearly indicate the progress made in this field in the last few years. Much more, however, remains to be done. Higher education in India is still overweighted on the arts side. Only 22 percent of Indian students going to universities enter professional and technological colleges. The proportion of graduates to undergraduates is also very low in professional subjects—1 to 17. And only 33 percent of the bachelors and 14 percent of the masters students completed professional courses of studies.

Fortunately, it was realized even before independence that the need for technological training would far exceed the increasing training facilities. The Scientific Manpower Committee appointed by the Government of India estimated in 1948 that the overall personnel requirements of the country in scientific and technical fields in the next few years would be about 54,000 engineers and 20,000 technologists. Consequently, Indian students were encouraged, through scholarships and all other possible means, to go to the United Kingdom and the United States of America for advanced studies and training in various technological fields. Under the Government of India scholarships scheme, instituted in 1945, about 1,400 Indian scholars have had advanced training in the U. S. A. And in the current academic year there are about 1,800 Indian students in this country, most of them studying technology, including engineering. In this way American education is making a valuable contribution to the future progress of India and at the same time strenghtening the basis of friendship between the two countries.

Promotion of Research

Although there has been an impressive increase in technical personnel, the number available is still far below the estimated requirements commensurate with the industrial needs of the country. Even so, the problem of unemployment remains unresolved. One reason is that industrial development has not kept pace with economic plans, nor with the growth of technical personnel. Increasing emphasis is therefore laid on research so as to relate technological studies and training to practical needs of industry. Astonishing progress has been made in this field in recent years, considering the fact that the first department for graduate studies and research was started by Calcutta University as late as 1914. The Government of India constituted in 1942 the Council of Scientific and Industrial Research as an autonomous body for "the promotion, guidance and coordination of scientific and industrial research in India."

It is, however, since independence that scientific research has made rapid strides in India under the guidance of the Council and the Central Ministry of Education. In this brief period, 15 fully equipped National Laboratories have been set up to conduct advanced research in different fields of science and technology. In addition, 66 research institutions in different fields of science and technology receive financial assistance from the Council. By 1952–53 the Council had set up 25 research committees and 4 coal survey stations; sponsored 110 research schemes in various centers, and encouraged different industries to organize several cooperative research associations for their own benefit. It has also instituted fellowships and scholarships for the training of research personnel, provided technical advice, and set up rural science centers.

The Central Ministry of Education too has been actively promoting the cause of scientific and industrial research in the country. The Indian Institution of Technology was opened at Kharagpur in 1952, on the lines of the Massachusetts Institute of Technology; and plans for two more institutes on similar lines are nearing completion. To promote research in universities and other institutions of higher education, 150 senior scholarships and 195 junior scholarships were sanctioned by the Government of India between 1949 and 1952. In 1953–54, 315 senior scholarships and 238 junior scholarships were instituted. The Government of India also launched in 1949–50 a grants scheme under which by 1953 they had made grants and loans amounting to $4,158,000 to Indian universities for promotion of research. The project has since been integrated in the Five Year Plan of Technical Education, envisaging an expenditure of $7,455,000 to be implemented by the Central Government in collaboration with State Governments.

This review may seem to imply that too much emphasis is laid on technological education and training at the cost of liberal education. Fortunately, that is not so. In fact, a welcome feature of the recent attempts at reorganization of higher education in India is the balanced view taken of the relative

places of sciences and humanities. "Only by a combination of sciences and humanities can a true conception of civilization survive." Accordingly, the Central Government also has plans of aiding universities in improving their programs of humanities and humanistic research. There are 37 research institutions in different fields of humanistic studies.

In 1953–54, the Central Ministry of Education alone spent a little over $6,300,000, which was 40 percent of its whole budget, directly on university and technological education in the country. The Council of Scientific and Industrial Research had a total budget provision of $4,242,000 for 1953–54.

Problem of Federal Aid

These facts illustrate the increasing aid of the Central Government to higher education in India. That aid has, however, created another difficult problem.

As mentioned earlier, universities are State institutions. Most of the colleges affiliated with the universities are private, but their endowments are inadequate to support them as they yield only 4 percent of their total income. Tuition and examination fees are comparatively low—on an average they do not amount to more than $50 per year for the first degree courses. For graduate and technological courses they are somewhat higher. Even so, they provide 45 percent of the income of Indian universities. That, however, still leaves a wide gap to fill in; and so Indian universities have to turn to their State Governments for financial assistance; 34.5 percent of their income is received from this source. Such assistance is given in the form of block grants, without any reference to the details of proposed expenditure. The grants are, however, subject to legislative sanction, usually on an annual basis. That makes for financial uncertainty which has undesirable effects on long-term planning. Thus, Indian universities are already much too dependent on State Governments for their financial stability. They are, therefore, naturally afraid of losing their academic freedom and administrative autonomy. But, it has been possible so far to reconcile the necessary financial control of State Governments with a large measure of autonomy enjoyed by Indian universities.

This uneasy balance has been upset by the urgent need of Indian universities for increasing financial assistance from the Central Government to improve the status of teachers and their standards of teaching and research. It has also become essential that research and higher studies should be planned on a national scale to avoid duplication and wastage. At the same time, these developments have augmented the fears of Indian universities of increasing infringement on their autonomy and freedom. The problem of the Central Government is how to give the universities all the money they need so badly without using it as a means of control. An attempt has been made to solve this problem by setting up a University Grants Commission on the lines of the University Grants Committee of Great Britain, consisting of representatives of the Ministries of Education and Finance of the Central Government, and 6 or 7 vice chancellors of Indian universities, with power to grant funds and loans to various institutions of higher education on the basis of their needs and merits.

"Quit English"

The problem, however, goes deeper; it touches wider issues. In the last analysis, it is a problem of adjustment to newborn independence. Independence has accelerated the tempo of educational development making dependence of State universities on Federal funds almost unavoidable. At the same time it has accentuated the growing danger of regionalism. There is, for instance, a keen demand for establishment of universities on the basis of regional languages; in fact, most of the new universities since independence are on that basis. By 1954 no major linguistic area of India was without its own university. Then there is an insistent demand for revival of regional languages and literatures because of their long neglect under the present system of education.

Soon after independence it was decided that regional languages should replace English as the medium of instruction, but that English should be retained as compulsory secondary language. In a way that was inevitable. Apart from being a symbol of foreign rule, the English language had come to acquire an inflated artificial value in the scheme of Indian education; it had, in fact, become the sole criterion of academic success. But its rapid replacement by regional languages would remove a powerful unifying force in higher education as well as in the whole national life. That would, at this stage, only accentuate disruptive forces; besides it would seriously retard the much needed development of technological education because of the lack of technical terminology in Indian languages. And so, sobering second thoughts have somewhat slowed

down the slogan of "Quit English," until "Hindi" can effectively take the place of English as the official national language of India. In fact, all Indian universities except 4—Bihar, Lucknow, Nagpur, D. N. D. T.—still retain English as their medium of instruction. Even these 4 universities use English for graduate studies.

The solution to the problem of languages is beset with serious difficulties. In the near future educators believe that the average college student in some parts of the country will need a knowledge of four languages—mother tongue, Hindi, English, and Sanskrit. The solution, however difficult, is probably a matter of time. But the problem of reconciling growing regionalism with national needs of the country is even more serious. Actually, there is a triangular conflict between Western influence, regional forces, and national needs. At this stage, the need to nationalize higher education in content and outlook appears to be of primary importance. That may, however, lead to the danger of "an undue absorption in the glories of the past." Then there is the feeling that accent on nationalism might wean India away from the West.

Prospects

Such are, in brief, some of the challenging issues faced by higher education in India. These problems and paradoxes, difficulties and dilemmas are all the more complicated because of the desperate shortage of funds and trained personnel. The limited resources of the State and Central Governments are already severely strained by the paramount problems of physical survival. And much of the best talent has been diverted from education to administration. No wonder, there is an apparent sense of confusion as well as a lack of clear social goals in the field of higher education today. That is probably an important reason of the increasing frustration and indiscipline among the student community in some parts of the country.

The question is whether the present system can resolve problems of such magnitude and complexity and provide necessary leadership in different fields of life without a revolutionary shakeup. That is a disturbing question. However, there is the hope that in the process of solving these problems and paradoxes the present system will acquire new values and achieve a gradual transformation of "substitution" into synthesis, of random growth into a consistent whole, and of the objective of sheer self-interest to constructive community effort. That is inevitably a slow process but there are reasons to hope for its success.

Indian education is already "an enormous laboratory for the intrusion and synthesis of a number of educational systems." Besides, unprecedented peaceful transfer of power provides a proper setting for such a transformation. Improved educational organization and increasing employment opportunities as well as national consciousness should infuse greater sense of social purpose and discipline among the student community. The urgent industrial needs of today are likely to rectify the tendency to hark back to the past. In this connection, Prime Minister Nehru recently warned that "there is nothing more dangerous than living only on inheritance." And, the decision to retain English as a compulsory secondary language will preserve the precious link with the West. Above all, the spirit of tolerance and assimilation that has characterized Indian civilization for ages augurs well for the eventual evolution in India of a rich synthesis of cultures in which East and West will fraternize in fruitful cooperation. Fortunately, that spirit has been fortified by the precept and example of Indian leaders like the poet Tagore and Mahatma Gandhi.

Indian Universities and Enrollments

The names and locations of the Indian universities are given below. The numbers indicate the enrollments for the year 1951–52. The courses offered are also shown.

AGRA UNIVERSITY, Agra,[1] 25,235
Arts, science, commerce, law, engineering, medicine, agriculture, veterinary medicine, animal husbandry

ALIGARH MUSLIM UNIVERSITY,[3] Aligarh, 2,920
Arts, science, engineering, and theology

ALLAHABAD UNIVERSITY,[3] Allahabad, 6,899
Arts, science, commerce, law, fine arts, home economics, music, social work

ANDHRA UNIVERSITY,[3] Waltair, 18,501
Arts, science, commerce, law, agriculture, education, engineering, medicine, Ayurveda, fine arts, and Oriental learning

ANNAMALAI UNIVERSITY,[3] Annamalainagar, 1,795
Arts, science, engineering, technology, Oriental studies, music, social work

BANARAS HINDU UNIVERSITY,[3] Banaras, 8,648
Arts, science, law, technology, Oriental learning, theology, Ayurveda, music, and fine arts

BARODA UNIVERSITY, Baroda,[3] 3,675
Arts, science, commerce, technology and engineering, education, psychology, fine arts, home economics, social work, medicine, and music

BIHAR UNIVERSITY,[3] Patna, 20,780
Arts, science, commerce, medicine, engineering, law, agriculture, and veterinary medicine

BOMBAY UNIVERSITY,[4] Bombay, 24,232
Arts, science, commerce, law, technology, and medicine

CALCUTTA UNIVERSITY,[3] Calcutta, 61,956
Arts, science, law, medicine, engineering, home economics, and social work

DELHI UNIVERSITY,[4] Delhi, 7,891
Arts, science, social science, law, medicine, agriculture, forestry, education, and home economics

GAUHATI UNIVERSITY,[3] Gauhati, 8,874
Arts, science, commerce, agriculture, law, and medicine

GUJARAT UNIVERSITY,[1] Ahmedabad, 13,161
Arts (including education), science, commerce, technology (including engineering), agriculture, law, and medicine

JAMMU AND KASHMIR UNIVERSITY,[1] Srinagar, 2,844
Arts, science, education, and Oriental learning

KARNATAK UNIVERSITY, Dharwar,[3] 5,296
Arts, science, law, engineering, and agriculture

LUCKNOW UNIVERSITY, Lucknow,[3] 7,097
Arts, science, commerce, law, medicine (ancient and modern), and social work

MADRAS UNIVERSITY,[3] Madras, 46,335
Arts, science, law, commerce, agriculture, medicine, veterinary medicine, engineering and technology, teaching, Oriental learning, fine arts, home economics, music, and social work

MYSORE UNIVERSITY,[3] Mysore, 18,621
Arts, science, law, engineering and technology, and medicine

NAGPUR UNIVERSITY,[3] Nagpur, 9,371
Arts, science, commerce, law, agriculture, education, and medicine

OSMANIA UNIVERSITY,[3] Hyderabad (Deccan), 11,154
Arts, science, commerce, law, engineering, agriculture, medicine, veterinary medicine, education, religion and culture

PANJAB UNIVERSITY,[2] Solan (Simla Hills), 30,066
Arts, science, commerce, medicine, engineering, education, law, and agriculture

PATNA UNIVERSITY,[3] Patna, 7,425
Arts, science, commerce, medicine, engineering, education, law, agriculture, music, and social work

POONA UNIVERSITY,[2] Poona, 13,605
Arts, science; mental, moral and social science; law, medicine, engineering, and agriculture

RAJPUTANA UNIVERSITY,[2] Jaipur, 10,906
Arts, science, commerce, law, engineering, medicine, and education

ROORKEE UNIVERSITY,[3] Roorkee, 382
Engineering

[1] Affiliating university.
[2] Teaching and affiliating university.
[3] Residential and teaching university.
[4] Teaching and federal university.
[5] This university was established very recently and the full particulars are not available.

Locations of Indian universities.

SAUGOR UNIVERSITY,[2] Saugor, 4,930
Arts, science, law, and education

SEWAGRAM RURAL UNIVERSITY,[3] Wardha [5]

SHREEMATI NATHIBAI DAMODHER THACKERSEY INDIAN WOMEN'S UNIVERSITY,[1] Bombay, 946
Arts, fine arts, and music

TRAVANCORE UNIVERSITY,[2] Trivandrum, 19,941
Arts, science, commerce, law, medicine, technology, engineering, education, Oriental studies, and fine arts

UTKAL UNIVERSITY,[2] Cuttack, 6,238
Arts, science, commerce, law, education, and medicine

VENKATESHWARA UNIVERSITY,[1] Tirupati [5]

VISVA BHARATI,[3] Shantiniketan, 328
Arts, science, education, music and dancing, fine arts and crafts

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British Summer Schools

SUMMER STUDY at British universities is open to American students in 1955, according to an announcement made by the Institute of International Education, 1 East 67th Street, New York City. Six-week courses will be offered at Oxford, at Stratford-on-Avon, at London, and at Edinburgh.

A limited number of scholarships are available. Award and admission application forms may be secured from the Institute in New York or any of its regional offices. Completed applications should be returned to the Institute in New York by March 28, 1955. A limited number of steamship passages on Cunard ships are reserved for successful candidates.

British universities have combined annually since 1948 to organize a special program of summer schools. Courses are planned to serve the needs of well-qualified undergraduates in their junior or senior years or of postgraduate students. In the past participants have come from 15 to 25 different countries. Although two-thirds of the students at previous sessions have come from English-speaking countries, the opportunity to live in a university community with fellow students of similar interests from many nations has become a feature of the courses. The courses attract those ranging in age from 20 to 50. Interests vary from those of the teacher and professional to those of the scientist and businessman.

The Edinburgh School, arranged jointly by the Scottish universities, will have a historical theme, tracing the development of modern western civilization. In London the galleries, museums, records, and buildings serve as special source material for a study of the 17th and 18th centuries. The course at Stratford-on-Avon focuses on the literary and theatrical aspects of Shakespearean and Elizabethan drama. Contemporary politics and literature are studied under widely known lecturers and tutors at Oxford.

International Studies Tour

A 4-YEAR SEQUENCE of seminar tours, beginning with a South American tour in the summer of 1955, is to be inaugurated at Western College for Women, Oxford, Ohio. Summer tours of the Middle East, the Far East, and Europe will follow. Students on tours will be accompanied by a faculty member. Each year a professor-specialist from the region being studied will be brought to the campus to teach classes in the history and culture of the region and to meet informally with students to help them learn more about the people and countries they will visit. Special motion pictures and other programs will also be conducted for this purpose. Student interests will be considered in developing tour plans. Each student will be given opportunity to make a special investigation in her subject, and it is expected that observations made on the tours will be used later in senior-year independent study projects.

Language Laboratory at Pomona

POMONA COLLEGE has established a language laboratory this year to help students learn to speak and understand foreign languages as well as to read and write them. By means of audio-visual equipment, students are being taught to carry on conversations in French, Spanish, and Italian. Students in the laboratory hear natives speak through records and tape recordings, record their own versions of the language, and often detect their own mistakes when replaying the tapes. Those who need it receive correction from instructors hearing the tapes.

The incessant single-minded search for truth is the condition essential for both the material and intellectual progress of the nation and the race.—Charles W. Eliot.

Trends in Graduate Education

By WILLIAM A. JARACZ*

SINCE THE TURN of the century the population of the United States has more than doubled. The population of college age, the raw material of colleges and universities, is half again as large. But these increases, in the total population and in the population of college age, are small when compared with the increase in the annual product of the colleges and universities. In 1950, the year in which that product attained its greatest magnitude (see table 1), 17 times as many degrees were conferred as in 1900.[1] That is to say, for a population roughly twice as large, institutions of higher education [2] were producing 17 times as many college and university educated persons annually.

At the same time an increasing number of degrees have been conferred at the graduate level. The considerable increase in the total number of degrees conferred annually has been accompanied by a greater than proportionate increase in degrees conferred at the graduate level. At the turn of the century, fewer than 7 percent of all degrees conferred were graduate degrees[3]; of late years, nearly one-fifth have been graduate degrees.

The Backward Glance

On the basis that 1950 equals 100, the index number for graduate degrees conferred in 1900 is 3.0. That is to say, approximately 33 times as many graduate degrees were conferred in 1950 as in 1900. Relatively greater gains were made in conferrals of master's and second professional degrees than of doctorates. Again on the basis that 1950 equals 100, the index number for master's and second professional degrees conferred in 1900 is 2.7. This reflects a 37-fold increase in the number of master's and second professional degrees conferred in 1950 as compared with 1900. For doctorates, the index number for 1900 is 5.6. That is to say, 18 times as many doctorates were conferred in 1950 as in 1900.

Table 1.—Earned degrees conferred in higher educational institutions in the continental United States, by level of degree: decennially from 1900 to 1950, and annually from 1948 to 1954

Year [1]	Total degrees	Bachelor's and first professional degrees	Graduate degrees		
			Total graduate degrees	Master's and second professional degrees	Doctoral degrees
1900	29,362	27,410	1,952	1,583	369
1910	41,390	37,199	4,191	3,771	420
1920	53,487	48,622	4,865	4,301	564
1930	139,743	122,484	17,259	15,043	2,216
1940	216,521	186,500	30,021	26,731	3,290
1950	496,874	432,058	64,816	58,183	6,633
1948	317,607	271,019	46,588	42,400	4,188
1949	421,525	365,428	56,097	50,805	5,292
1950	496,874	432,058	64,816	58,183	6,633
1951	454,960	382,546	72,414	65,077	7,337
1952	401,203	329,986	71,217	63,534	7,683
1953	372,315	303,049	69,266	60,959	8,307
1954	356,608	290,825	65,783	56,788	8,995

[1] Twelve-month period ending June 30.

SOURCE: Research and Statistical Standards Section, Office of Education, U. S. Department of Health, Education, and Welfare.

The preceding data, although indicating considerable gains in graduate education, do not show the increase in the relative importance of graduate education within the framework of higher education generally. This increase can be readily demonstrated by relating the number of degrees conferred at the graduate level to the total number of degrees conferred. In 1950, 1 out of approximately every 8 degrees granted was a graduate degree. In 1900 the ratio was 1 out of every 15. This type of analysis, applied to the two levels of graduate degrees separately, indicates that 1 out of every 9 degrees was a master's or second professional degree in 1950, as contrasted with a ratio of 1 out of every 19 in 1900. The gain in doctorates is not pronounced, however. In 1950, 1 out of every 75 degrees was a doctorate, as contrasted with 1 out of every 80 in 1900.

To recapitulate briefly: The number of earned degrees conferred at the graduate level has increased

*Head, Statistical Services Unit, Research and Statistical Standards Section, Office of Education. Acknowledgment is made of the assistance of Evelyn V. Williams. The article is based on an address given before the Council on Graduate Work of the Association of Land-Grant Colleges and Univeristies, at Washington, D. C., Nov. 16, 1954.

[1] The number of degrees granted during a stated year is the sum of conferrals during the 12-month period ending June 30 of that year.

[2] Of the approximately 1,850 institutions of higher education, about three-fourths confer degrees, and about one-fourth grant degrees beyond the bachelor's and first professional level.

[3] As used here, the term "graduate degree" includes the master's degree, the second professional degree, and the doctorate; it excludes the bachelor's and the first professional degree.

at a much more rapid rate than (1) the total population; (2) the population of college age; and (3) the total number of degrees conferred annually at all levels. Relatively greater gains have been made at the master's and second professional level than at the doctoral level.

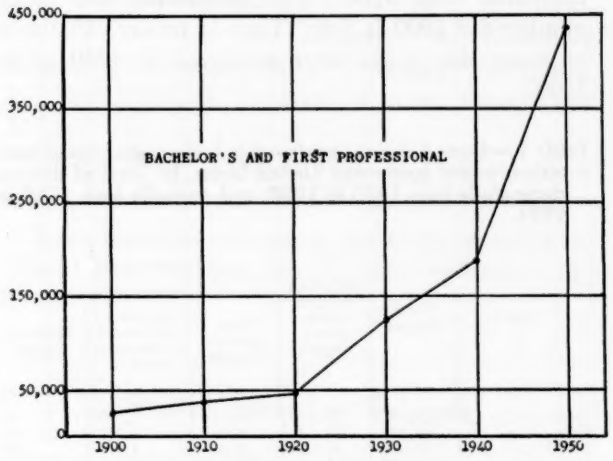

FIGURE 1A.—Bachelor's and first professional degrees conferred by higher educational institutions in continental United States: 1900–50.

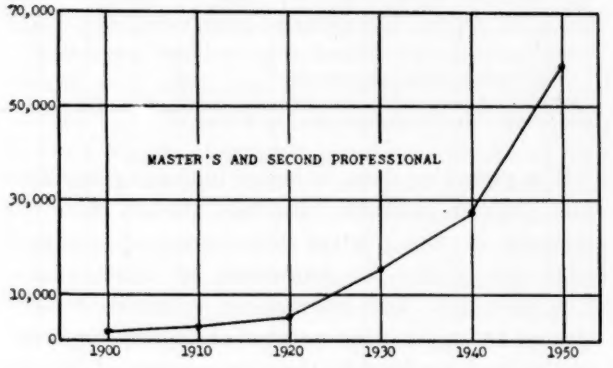

FIGURE 1B.—Master's and second professional degrees conferred by higher educational institutions in continental United States: 1900–50.

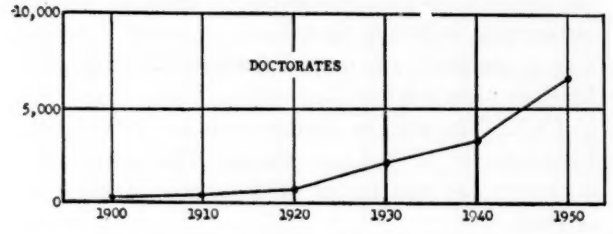

FIGURE 1C.—Earned doctorates conferred by higher educational institutions in continental United States: 1900–50.

The Immediate Past

It was pointed out earlier that 1950 was the peak year with respect to total degree conferrals. The large number of degrees conferred in that year was due primarily to the large number of bachelor's and first professional degrees conferred, inasmuch as such degrees constituted 87 percent of all degrees. The large number of first degrees was, in turn, due to two factors: (1) the largest enrollment of first-time students in the Nation's history in the fall of 1946; and (2) the exceptional circumstance of the enrollment of many undergraduate students with advanced standing in the years from 1947 to 1950.

These factors, however, were not on the whole reflected in graduate degree conferrals until 1951 and later. Consequently, although the peak year for the conferral of bachelor's and first professional degrees was 1950, it was not until the following year that a similar situation prevailed with respect to master's and second professional degrees. In 1951, the peak year for master's and second professional degrees, 12 percent more second degrees were conferred than in 1950. Since 1951 the number has declined annually: approximately 2 percent in 1952, 4 percent in 1953, and 7 percent in 1954. While the number of bachelor's and first professional degrees conferred has declined annually since 1950 and master's and second professional since 1951, the number of doctorates has continued to increase. The annual increases for the past 4 years have been: approximately 11 percent in 1951, 5 percent in 1952, and 8 percent in both 1953 and 1954.

As a result of the fact that the number of bachelor's and first professional degrees has declined annually since 1950, while the number of graduate degrees has declined only since 1951 and at a lower rate, the ratio of graduate degrees to total degrees has continued to increase. Graduate degrees constituted some 18 percent of all degrees in 1954, as contrasted with 13 percent in 1950. In 1954, 14 percent of all graduate degrees were doctorates as contrasted with 10 percent in 1950.

Briefly to recapitulate the period from 1951 to 1954: Whereas the total number of degrees conferred (at all levels) reached its peak in 1950, it was not until 1951 that the total number of graduate degrees reached its peak. Subsequent to 1951 the number of master's and second professional degrees declined annually, while the number of doctorates continued to increase. Inasmuch as the increase in

doctorates has not been great enough to compensate for the decrease in the number of master's and second professional degrees, the period since 1951 has been one of decrease for graduate degrees generally.

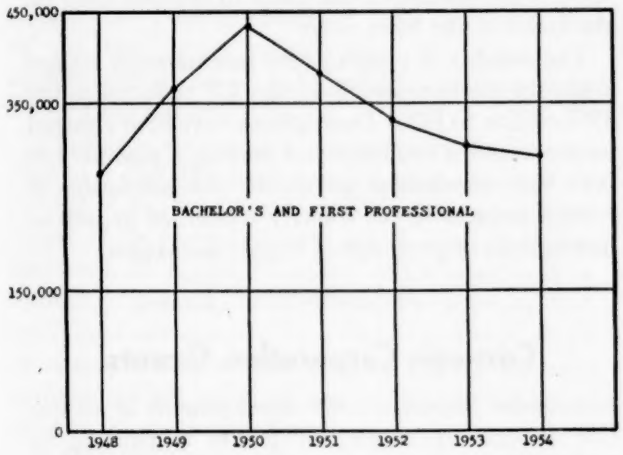

FIGURE 2A.—Bachelor's and first professional degrees conferred by higher educational institutions in continental United States: 1948–54.

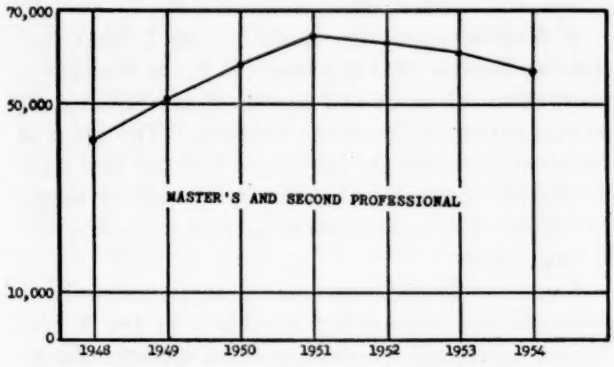

FIGURE 2B.—Master's and second professional degrees conferred by higher educational institutions in continental United States: 1948–54.

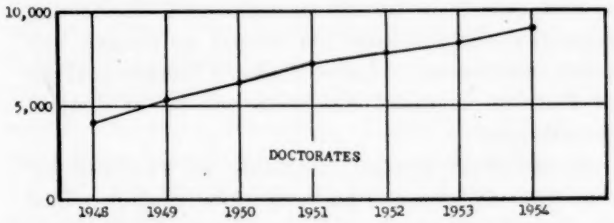

FIGURE 2C.—Earned doctorates conferred by higher educational institutions in continental United States: 1948–54.

Conclusion

From all indications, the total number of graduate degrees conferred should continue to decrease for another 2 years, that is, through 1956. Subsequent to that year, and excluding the possibility of a major emergency, annual increases are expected for the foreseeable future. Such increases are sufficient reason for considerable satisfaction: The country will gratifyingly be adding to its labor force more and more manpower with advanced educational attainment; the human resources of the country will be improved. A concomitant of the increased product, however, will be the increased cost in terms of the human and material resources of centers for graduate study; for, after all, the graduate sector of higher education is the expensive portion of higher education in terms of resources utilized. And, if past trends are any indication of future events, this expensive portion, graduate education, will continue to become larger as higher education is further developed.

Study Abroad

The 1954 *Study Abroad*[1] includes under one colorful cover the first trilingual edition, replacing the separate English, French, and Spanish editions of previous years. The new edition is consequently larger, although part of the increase in size may be attributed to the increase in numbers of fellowships, scholarships, and other subsidized opportunities for educational travel. In place of a general review of fellowship and training programs of the United Nations and its Specialized Agencies and Member States, which appeared in the previous volumes, the current edition includes a section on "The Operation of International Fellowship Programmes." It also includes a completely revised section on "International Trainee Exchange" contributed by the International Labor Organization.

Although the current *Study Abroad* replaces three editions, it does not attempt to do so by including under a single cover duplicate material in each language. The Table of Contents, the Introduction, and Part I are given in English, in French, and in Spanish. The explanatory material in part III is likewise given in each of the three languages as are

[1] *Study Abroad* (Études à l'étranger—Estudios en el extranjero): International Handbook, Fellowships, Scholarships, Educational Exchange, vol. VI, 1953–54. Paris, France: UNESCO, 1954. (Available in this country from the Columbia University Press, 2960 Broadway, New York 27, N. Y.) 711 p. $2.

table titles and boxheads. But the individual listings of fellowships and training opportunities are presented in the language most appropriate for the offering country. In those countries in which English, French, or Spanish is not the everyday language, usage for international study purposes or for international official communications has served as the criterion in determining the language for the listings.

Countries are listed alphabetically with cross references to facilitate the location, for example, España—see Spain; Países Bajos—see Netherlands. Where necessary the names of countries are carried in all three languages; for example, in the section "List of Institute of International Education Selection Committees," Italy, Italie, and Italia precede the address of the Cultural Relations Officer in Rome.

Of especial interest to administrators of fellowship programs is a new section entitled "The Operation of International Fellowship Programmes." A continual collection and study of information on all phases of international fellowship and exchange programs has resulted in what is described as "a noteworthy consensus of expert opinion, based on considerable practical experience in the field of international fellowship administration." The principles to be observed have been presented as steps to be followed by the administrator of the program: The Planning of Fellowship Programmes; Duties of the Administrator: Preliminary Preparations; Announcement of the Programme; Selection; Award of the Fellowship; Supervision During the Fellowship; the Return of the Fellowship Holder; and the Evaluation of the Fellowship Programmes. Although the principles discussed are applicable primarily to the administration of international fellowship programs, the details covered might well serve as a guide in the administration of domestic fellowship and scholarship programs. Particularly valuable is the series of questions designed to be used in evaluating the effectiveness of a program.

Volume I of *Study Abroad*, published in 1948, reported 15,070 study opportunities offered. The current edition reports over 45,000. The increase represents growth in both international fellowship programs and coverage. The number of programs has risen from 672 to 1,982. Three new countries—Greece, Indonesia, and Jordan—have been added since the publication of the 1953 edition.

The arrangement of materials in the individual program announcements remains the same: name of donor and of scholarship, followed by field of study, where tenable, conditions, value, duration, number available, and where to apply. A distinct improvement is the placing of the guide to symbols used on the inside of the front cover.

The number of programs for international trainee exchange has increased from the 121 reported in the 1951 edition to 189. Descriptions have been grouped under receiving countries and provide a summary of laws and regulations governing the admission of foreign trainees to the country concerned as well as descriptions of programs of trainee exchanges.

Carnegie Corporation Grants

EXPLORING important new developments in education is one basic goal of grants amounting to $1,281,000 recently announced by the Carnegie Corporation of New York. America's student body, the theory and practice of general education in the United States, and the caliber of Soviet science training come within the scope of new studies which will be started with the foundation's aid.

A $50,000 grant was made to the Educational Testing Service of Princeton, N. J., to conduct a pilot study of ways and means of establishing an annual survey of American students. The grant is designed to enable the Service to find out how such an annual survey of the country's students might be organized and administered and what information it might cover.

A grant of $20,000 was made to support a study of scientific and engineering education in the Soviet Union, which will be made at the Center for International Studies of Massachusetts Institute of Technology. The recently published fact that the USSR is currently turning out twice as many scientists and engineers as the United States gives an added urgency to the study. In a preliminary investigation of the quality of Soviet scientific and engineering education the Institute has turned up enough valuable information to indicate that a further analysis of Russian technical education will be of distinct importance.

A review of general education as practiced by American colleges and universities is being provided for in a Carnegie Corporation grant of $50,000 to Columbia University. Closely allied to this study is a $200,000 Corporation grant, which is being

divided equally among Columbia, Chicago, Harvard, and Yale universities, to continue a program of "internships" in general education. Under this plan, started 3 years ago with Corporation support, faculty members from smaller colleges participate in the imaginative general education programs operating at the four larger universities; their experience enables smaller colleges to benefit from the pioneering work of the larger schools.

The largest single grant announced by the Corporation is a $500,000 appropriation to the Council on Foreign Relations, New York City, to support three phases of its program: research and study projects; the work of regional Council committees; and a fellowship program for outstanding scholars and newspaper correspondents. Since its founding 33 years ago, the Council has served as a bridge between business leaders, scholars, and public officials interested in international relations.

A $150,000 Corporation grant to Michigan State Colleges advance research on technical assistance in underdeveloped areas. The fund will be used chiefly for studies of the different patterns of technological change along the United States-Mexican border. Cornell University received $40,000 from the Corporation for final studies on the impact of technological change of nonindustrial societies. Earlier work in this area has been supported by the Carnegie grants amounting to a half-million dollars.

In the British Dominions and Colonies, the Carnegie Corporation granted $64,000 to the University College of the West Indies to advance faculty research and study in the Caribbean area.

Doctor of Musical Arts Degree

A NEW DOCTORAL PROGRAM in musical arts is now offered at the University of Illinois for the benefit of composers and musical artists desiring advanced degrees for professional advancement in the academic world. By action of the trustees the university has been empowered to confer the doctor of musical arts, enlarging the present graduate work in music to include composition and performance as well as research and music education. Candidates for the degree must demonstrate artistic competence either by writing a large-scale musical work or by outstanding public performances. In addition a thesis reporting independent research on a topic related to the major activity of the candidate will be required.

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The Core in Secondary Schools: 1953–54 References, by Grace S. Wright. Washington, 1954. Circular No. 323, Supplement No. 2. 6 p. Proc.

Educating Children in Grades Seven and Eight, by Gertrude M. Lewis. Washington, U. S. Government Printing Office, 1954. Bulletin 1954, No. 10. 99 p. 35 cents.

Education Directory 1953–54, Part 4, Education Associations, by Margaret M. Butler. Washington, U. S. Government Printing Office, 1954. 54 p. 30 cents.

Education in the German Federal Republic, by Gordon W. Prange and Alina M. Lindegren. Washington, 1954. Studies in Comparative Education. 42 p. Proc.

Fall 1954 Statistics on Enrollment, Teachers, and Schoolhousing in Full-Time Public Elementary and Secondary Day Schools, by Samuel Schloss and Carol Joy Hobson. Washington, 1954. Circular No. 417. 4 p. Proc.

Federal Funds for Education 1952–53 and 1953–54, by Clayton D. Hutchins, Albert R. Munse, and Edna D. Booher. Washington, U. S. Government Printing Office, 1954. Bulletin 1954, No. 14. 130 p. 45 cents.

Following Graduates into Teaching, by Effie G. Bathurst *and* Jane Franseth. Washington, U. S. Government Printing Office, 1954. Bulletin 1954, No. 6. 45 p. 25 cents.

Free and Inexpensive Aids for the Teaching of Mathematics, by Kenneth E. Brown. Washington, 1954. Circular No. 348 (rev.). 10 p. Proc.

Teaching Aids for Developing International Understanding: Latin America, by Delia Goetz and Edith Harper. Washington, 1954. 11 p. Proc.

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Resident, Extension, and Adult Education Enrollment in Institutions of Higher Education: November 1953, by Herbert S. Conrad and William A. Jaracz. Washington, U. S. Government Printing Office, 1954. Circular No. 414. 28 p. Proc. 30 cents.

Non-Government Publications

Accent on Teaching: Experiments in General Education, Sidney J. French, *ed.* New York 16, Harper & Brothers, 1954. 334 p. $4.75.

Reports on experiments in general education; presents new approaches and methods in the classroom handling of the humanities, the social sciences, and the physical sciences; discusses (1) the role of the administrator and (2) evaluation as an aid to instruction; the contributions are by 25 authors; concerned primarily with improvements in curriculum and in instructional techniques.

The American Lawyer: A Summary of the Survey of the Legal Profession, by Albert P. Blaustein and Charles O. Porter. Chicago 37, The University of Chicago Press, 1954. 360 p. $5.50.

Summarizes information collected for the Survey of the Legal Profession and published in approximately 175 separate reports—12 in book form, 6 in typed form, and the rest as articles in periodicals. The survey was instituted in 1947.

State University of New York: Its Progress and Its Prospects. Proceedings of the Third Symposium Sponsored by State University of New York, March 20–21, 1953. Albany, N. Y., the University, [no date]. 148 p.

A Study of Personnel Practices for College and University Office and Clerical Workers in the Selected Institutions of Higher Education and a Recommended Personnel Program for These Workers in a Typical College or University: A Report of a Type C Project, by Wilbur Donald Albright. 809 South Wright St., Champaign, Ill., College and University Personnel Association, 1954. 131 p. Proc. $2.50.

Supporting Our Schools, Colleges, and Wesley Foundations, Woodrow A. Geir, *ed.* Box 871, Nashville 2, Tenn., Board of Education, The Methodist Church, 1954. 29 p.

The Finance of Higher Education (rev. ed.), by John Dale Russell. Chicago 37, The University of Chicago Press, 1954. 416 p. $7.50.

Examines all the principal areas where finance enters into higher education. After a brief introductory survey of educational finance, the subsequent chapters are devoted to the organization of a college or university business office, financial accounting, budgetary procedure, reports and audits, classification and analysis of expenditures and income, student fees, financial assistance to students, the management of endowment and other trust funds, purchasing, auxiliary activities, financial promotion, and financing special projects such as retirement plans and university presses.

HIGHER EDUCATION

Published monthly from September through May. Its printing was approved by the Bureau of the Budget on September 28, 1954, as required by Rule 42 of the Joint Committee on Printing.

MANAGING COMMITTEE
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Publication Office: Office of Education
U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE - - - WASHINGTON 25, D. C.

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